* 1. **Biological Molecules**

Learn your biochemical tests and remember to put colour changes from and to. E.g. Iodine changes from brown to blue/black if starch is present Remember Benedicts requires heat.

Remember nucleic acids are made from polynucleotides proteins are made from polypeptides.

If you are asked to label a specific DNA/RNA nucleotide distinguish the sugar.

Make sure you know the differences between the words structure and function and can talk about both of these for all biochemical groups.

Remember starch is a energy store NOT a carbohydrate store.

Make sure you can draw the components produced from the hydrolysis of a lipid, disaccharide and dipeptide if given these molecules.

If a polypeptide chain has an amine group at one end it will have a carboxyl group at the other end.

**1.2**

**Cell Organelles**

The nucleus is either the site of DNA replication or protein synthesis do not use simple definitions such as controls the cell.

A digestive vacuole is found in cells such as amoeba whereas plants have a large central vacuole.

Cilia and microvilli are different – microvilli are folding of the plasma membrane and found in the ileum epithelial cells whereas cilia are attached to the plasma membrane and are found on columnar epithelial cells of the trachea.

Remember mitochondria and chloroplasts were thought to have been prokaryotic cells so will therefore have structural similarities such as naked DNA /70s ribosomes.

Remember mRNA and ribosomes only move out of the nucleus (never into the nucleus)

**Tissues**

Know different type of tissue and where they are found in the body.

e.g. cuboidal epithelial cells in the kidney

Know that organs are collections of different tissues working together to perform a function whereas tissues are groups of the similar cells working together to perform a function.

**1.3 Transport**

Remember the rate of simple diffusion is proportional to the concentration gradient whereas facilitated diffusion will at some be limited by the availability of protein carriers.

Remember to show working in calculations and units.

Remember that ethanol dissolves phospholipids but denatures proteins.

Know 4 functions of membrane proteins.

Remember the phospholipid bilayer is one part of the plasma membrane.

Turgid and plasmolysed are terms only used with plant cells not animal cells.

**1.4 and 1.5 Enzymes**

You have to use the full term Enzyme Substrate complex do not abbreviate to ESC

Intracellular enzymes are inside cells and extracellular enzymes are outside cells do not use the term body!

Remember the product can sometimes can affect the enzyme – if the product is acidic it will affect the shape of the enzyme structure and therefore its activity.

**1.7 Nucleic acids**

Know the difference between a nucleic acid, nucleotide and polynucleotide.

Ensure you look at whether the question is asking about the differences between the structure of the nucleic acids of DNA and RNA or differences in the structure of the nucleotides.

DNA is helical RNA is NOT helical.

DNA forms a template / code for protein synthesis.

After the S stage of interphase remember the DNA content doubles NOT the number of chromosomes.

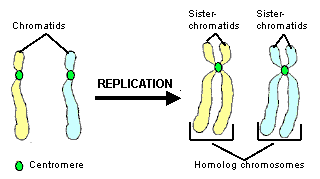
**1.7 Cell Division**

Remember to look carefully to see of the question is asking for differences in the cells produced or the processes of mitosis and meiosis and answer appropriately. E.g. two divisions versus one nuclear division would not answer a question that asked for differences between the cells produced.

If you compare the amount of DNA always compare back to the parent cell e.g. the daughter cell had half the amount of DNA compared to the parent.

Remember in plants root tips carry out mitosis.

Interphase is usually the longest stage of the cell cycle so more cells will be present in interphase.

Make sure you can know that a replicated chromosome made from 2 chromatids is ONE chromosome and looks like: 

This is cytokinesis NOT telophase look at the cell dividing

Mitosis can be used to replace damaged cells it does NOT repair damaged cells.

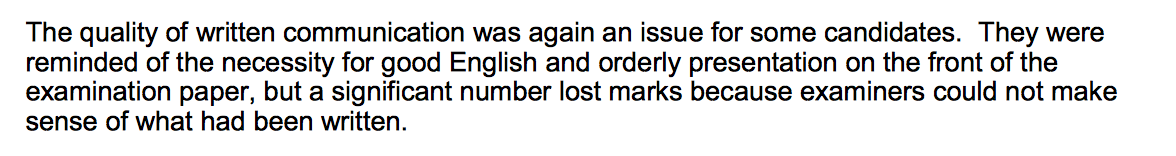
You have to be able to spell meiosis and mitosis correctly no leeway is given on these terms.

**General Tips**

If given a table USE / Quote data from it as appropriate.

When asking to compare you need to mention both things and compare them on the same point.

Please note the comment below write in blank ink, write clearly and try to be succinct – think and pan your answers.



Read the whole question before beginning to answer it.

Read the question to yourself twice before beginning – and reflect on what they are asking.